

PENDING CLAIMS

1-25. (Canceled)

26. (Previously Presented) A method comprising:

searching data stored in a computer readable media for a first initial search result using at least a first portion of a first key; and

if the first initial search result is a route index corresponding to the first key, then returning the route index; and

if the first initial search result is a subtree index for an iterative search, then performing an iterative search of the data stored in the computer readable media, the iterative search comprising: searching the data for an iterative search result using a subsequent key comprising the subtree index found in a preceding search and at least a next portion of the first key; and if the iterative search result is a route index corresponding to the first key, then returning the route index; and if the iterative search result is a subtree index for a next search, then performing the iterative search again.

27. (Previously Presented) The method of claim 26 further comprising:

searching the data for a second initial search result using at least a first portion of a second key, wherein the step of searching the data for the second initial search result is performed in parallel with the step of searching the data for the iterative search result.

28. (Previously Presented) The method of claim 27 wherein the first and/or second keys comprise at least one of either a 32 bit IPv4 address or a 128 bit IPv6 address.

29. (Previously Presented) The method of claim 27 wherein the first and/or second keys further comprise a prefix corresponding to a Virtual Private Network identifier.

30. (Previously Presented) The method of claim 26 wherein the data is stored in a lookup table.

31. ((Previously Presented) The method of claim 30 wherein the subtree index comprises a pointer to at least one other entry stored in the lookup table.

32. (Previously Presented) An apparatus comprising:
a forwarding engine configured to search data for a first initial search result using at least a first portion of a first key, wherein the forwarding engine is configured to return a route index if the first initial search result is a route index corresponding to the first key, and wherein the forwarding engine is configured to perform an iterative search if the first initial search result is a subtree index, wherein the iterative search comprises: searching the data for an iterative search result based on a subsequent key comprising the subtree index found in a preceding search and at least a next portion of the first key; and if the iterative search result is a route index corresponding to the first key, then returning the route index; and if the iterative search result is a subtree index, then performing the iterative search again.

33. (Previously Presented) The apparatus of claim 32 further comprising:
a controller configured to enable parallel processing of at least (i) searching the data for a second initial search result using at least a first portion of a second key, and (ii) searching the data for an iterative search result based on a subsequent key comprising the subtree index found in a preceding search and at least a next portion of the first key.

34. (Previously Presented) The apparatus of claim 33 wherein the first and/or second keys comprise at least one of either a 32 bit IPv4 address or a 128 bit IPv6 address.

35. (Previously Presented) The apparatus of claim 33 wherein the first and/or second keys further comprise a prefix corresponding to a Virtual Private Network identifier.

36. (Previously Presented) The apparatus of claim 33 wherein the data is stored in a lookup table.

37. (Previously Presented) The apparatus of claim 36 wherein the subtree index comprises a pointer to at least one other entry stored in the lookup table.

38. (Previously Presented) An apparatus comprising:
means for searching data for a first initial search result using at least a first portion of a first key, wherein said means is configured to return a route index if the first initial search result is a route index corresponding to the first key, and wherein said means is configured to perform an iterative search if the first initial search result is a subtree index, wherein the iterative search comprises: searching the data for an iterative search result based on a subsequent key comprising the subtree index found in a preceding search and at least a next portion of the first key; and if the iterative search result is a route index corresponding to the first key, then returning the route index; and if the iterative search result is a subtree index, then performing the iterative search again.

39. (Previously Presented) The apparatus of claim 38 further comprising:
means for controlling the parallel processing of at least (i) searching the data for a second initial search result using at least a first portion of a second key, and (ii) searching the data for an

iterative search result based on a subsequent key comprising the subtree index found in a preceding search and at least a next portion of the first key.

40. (Previously Presented) The apparatus of claim 39 wherein the first and/or second keys comprise at least one of either a 32 bit IPv4 address or a 128 bit IPv6 address.

41. (Previously Presented) The apparatus of claim 39 wherein the first and/or second keys further comprise a prefix corresponding to a Virtual Private Network identifier.

42. (Previously Presented) The apparatus of claim 38 further comprising a means for storing the data.

43. (Previously Presented) The apparatus of claim 42 wherein the subtree index comprises a pointer to at least one other entry in the means for storing the data.

44. (Previously Presented) A method comprising:
searching data stored in a computer readable media for an iterative search result using a subtree index found in a preceding search of the computer readable media and at least a next portion of a first key; and

if the iterative search result is a route index corresponding to the first key, then returning the route index; and

if the iterative search result is a subtree index for a next search, then performing said searching data for an iterative search result again.

45. (Previously Presented) The method of claim 44 further comprising:

searching the data for a second initial search result using at least a first portion of a second key, wherein the step of searching the data for the second initial search result is performed in parallel with the step of searching the data for the iterative search result.

46. (Previously Presented) The method of claim 45 wherein the first and/or second keys comprise at least one of either a 32 bit IPv4 address or a 128 bit IPv6 address.

47. (Previously Presented) The method of claim 45 wherein the first and/or second keys further comprise a prefix corresponding to a Virtual Private Network identifier.

48. (Previously Presented) The method of claim 44 wherein the data is stored in a lookup table.

49. (Previously Presented) The method of claim 48 wherein the subtree index comprises a pointer to at least one other entry stored in the lookup table.